

## ABSTRACT OF THE DISCLOSURE

A MOSFET can operate as a resistor by operating in the linear or ohmic region of the drain V-I characteristics. This region can be obtained by floating the gate of the MOSFET, when the dc current and the voltage drop are given. Multiple resistors can be duplicated (or mirrored) by sharing the same source and floating gate. The floating gate voltage can be simulated using a closed loop equivalent circuit. Alternatively, the gate voltage can also be derived from the given drain-to-source voltage and the given current in a feedback loop. With this adaptive MOSFET resistor, the minimum supply voltage can be as low as the sum of the BJT threshold and the complementary BJT saturation voltage, e.g.  $V_{CC} \geq V_{BE} + V_{sat}$  (e.g.  $0.8 + 0.15 < 1.0V$ ). The threshold voltage  $V_t$  should be less than  $V_{BE}$ .

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